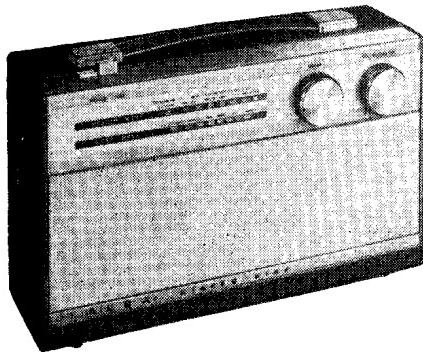


"TRADER" SERVICE SHEET

1616



OPERATING from two 9V dry batteries, Alba 99 is a six-transistor portable radio receiver covering Medium and Long wavebands. An internal ferrite rod aerial is fitted and two

Transistor Table

Transistor	Emitter (V)	Base (V)	Collector (V)
TR1 AF117*	0.95	1.0	8.1
TR2 AF117*	1.65	1.7	6.25
TR3 OC70†	0.87	0.9	5.3
TR4 OC81D§	1.80	1.7	8.1
TR5 OC81†	8.90	9.0	18.0
TR6 OC81†	0.02	0.16	9.0

*Positive meter terminal connected to the tuning gang frame.

†Positive meter terminal connected to full battery positive.

§Positive meter terminal connected to battery centre tap.

Transistor voltages given in the table in col. 1 were taken from information supplied by the manufacturer. All read-

ings are negative with respect to the points indicated in the table.

CIRCUIT DESCRIPTION

Input from the ferrite rod aerial coils L1a and b (m.w.) and L2a and b (l.w.) is fed to the base of the mixer TR1. The aerial coils are tuned by C36, C37 and C38 with C39 added on l.w. R30 is fitted where necessary to damp L2a on l.w. An external aerial may be coupled to the ferrite rod via L3.

The local heterodyne signal is generated
(Continued overleaf col. 1)

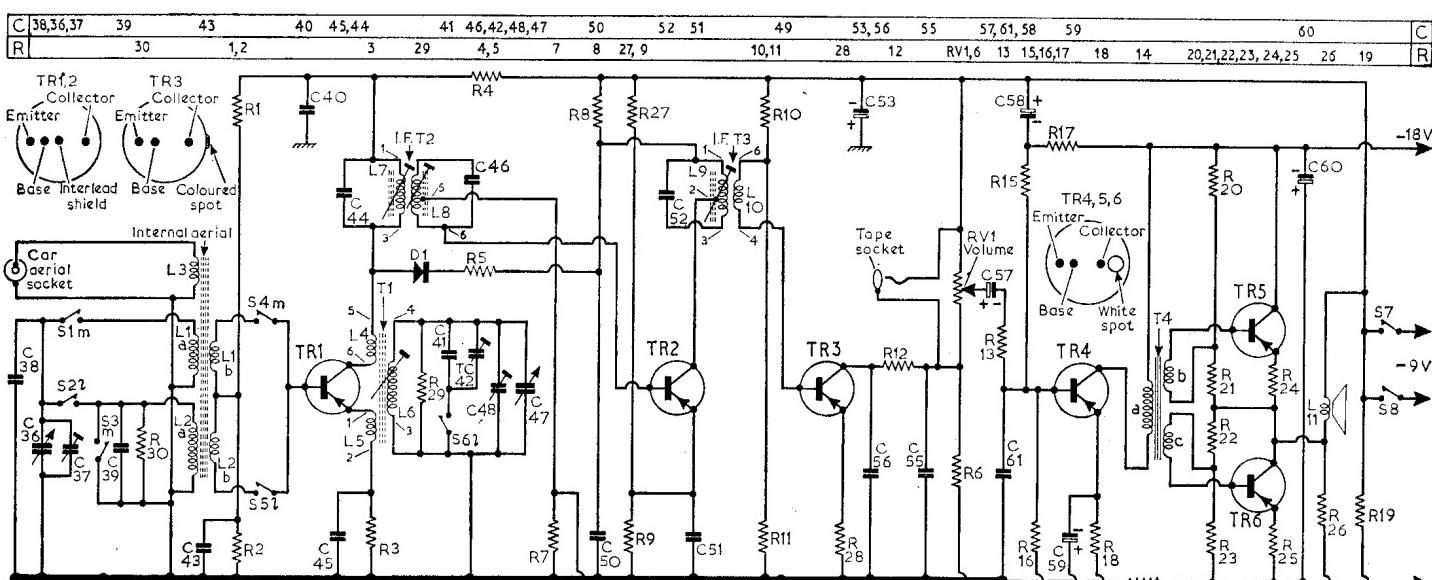
Resistors				R28	270Ω	A3	C59	100μF	B3
	R1	39kΩ	B2	R29	220kΩ	B2	C60	100μF	C2
	R2	6.8kΩ	B2	R30*	220kΩ	—	C61	0.01μF	A3
	R3	1kΩ	B1	RV1	20kΩ	—			
	R4	100Ω	A2						
	R5	680Ω	A2						
	R6	15kΩ	A2						
	R7	12kΩ	A2						
	R8	560Ω	A2						
	R9	330Ω	A2						
	R10	47kΩ	A3						
	R11	100Ω	A3						
	R12	100Ω	A3						
	R13	330Ω	A3						
	R14	150Ω	B3						
	R15	27kΩ	B3						
	R16	10kΩ	A3						
	R17	680Ω	B3						
	R18	330Ω	B3						
	R19	10Ω	B3						
	R20	2.7kΩ	B2						
	R21	56Ω	B2						
	R22	2.7kΩ	B3						
	R23	56Ω	B3						
	R24	5Ω	B2						
	R25	5Ω	B2						
	R26	1.2kΩ	B3						
	R27	4.7kΩ	A2						

Capacitors				C36	C2	C1	
	R6	15kΩ	A2	C37	C2	C1	
	R7	12kΩ	A2	C38	8.2pF	A1	
	R8	560Ω	A2	C39	120pF	B1	
	R9	330Ω	B2	C40	0.04μF	A1	
	R10	47kΩ	A3	C41	220pF	B2	
	R11	100Ω	A3	C42	110pF	B2	
	R12	100Ω	A3	C43	0.04μF	B2	
	R13	330Ω	A3	C44	560pF	A1	
	R14	150Ω	B3	C45	0.02μF	B2	
	R15	27kΩ	B3	C46	560pF	A1	
	R16	10kΩ	A3	C47	—	C2	
	R17	680Ω	B3	C48	—	C2	
	R18	330Ω	B3	C49	16μF	A2	
	R19	10Ω	B3	C50	0.04μF	A2	
	R20	2.7kΩ	B2	C51	0.5μF	A2	
	R21	56Ω	B2	C52	250pF	A2	
	R22	2.7kΩ	B3	C53	250μF	A3	
	R23	56Ω	B3	C54	0.01μF	A3	
	R24	5Ω	B2	C55	0.01μF	A3	
	R25	5Ω	B2	C56	0.01μF	A3	
	R26	1.2kΩ	B3	C57	8μF	B3	
	R27	4.7kΩ	A2	C58	50μF	A3	

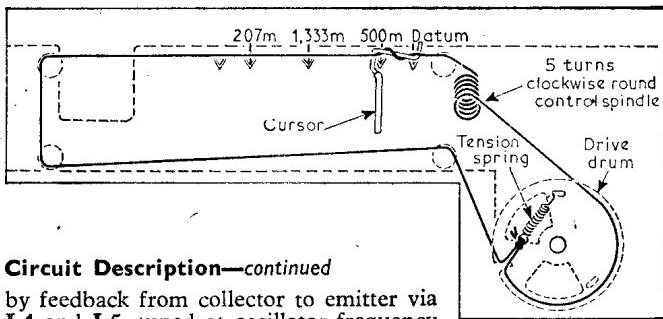
Coils				L1a	L1b	L2a	L2b	L3	L4	L5	L6	L7	L8	L9	L10	L11	C1
	L1a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L1b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L2a	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L2b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L7	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	L11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Miscellaneous				D1	OA79	B2	
	T4	{ a	b	220Ω			
		c		50Ω			
	S1-S6	—					
	S7, S8	—					

*Not fitted on some receivers



Circuit diagram of the Alba 99 which covers the Medium and Long wavebands and operates from two 9V dry batteries



Circuit Description—continued

by feedback from collector to emitter via **L4** and **L5**, tuned at oscillator frequency by **L6**, **R29**, **C47** and **C48** with **C41** and **C42** added in parallel on l.w. I.f. signals at 470kc/s in **TR1** collector are coupled by the double-tuned transformer **IFT2** to the base of **TR2** which operates as the i.f. amplifier. **D1** in conjunction with **R8** supplements normal a.g.c. action by conducting on large signals and damping **L7**. Base bias for **TR2** is derived from the network **RV1**, **R6** and **R7**.

Amplified i.f. output from **TR2** is coupled via the single-tuned transformer **IFT3** to the base of **TR3** which operates as detector and audio amplifier. Rectified audio signals are passed through the i.f. filter **R12**, **C55** and are developed across the collector load and volume control **RV1**. The d.c. potential present at the junction of **R12** and **RV1** is fed via **R6** to the base of **TR2** as a.g.c. voltage. The tape socket is wired across the volume control and provides an audio output independent of the control. Driver transistor **TR4** is biased by a combination of the voltage dropped across **R17**, **R15**, **R16** and **R19** and that developed across the emitter resistor **R18**.

TR4 has the primary of the phase-splitting transformer **T4** connected in its collector circuit feeding equal and opposite voltages from separate secondaries to the bases of **TR5** and **TR6**. These transistors operate in Class B push-pull and drive the high impedance loudspeaker and load impedance **L11**. A portion of the output which is developed across **R26** and **R19** is coupled to the driver **TR4** as negative feedback.

CIRCUIT ALIGNMENT

Equipment Required.—An a.m. signal generator with 30 per cent modulation; an audio output meter with a 0-100mV range and an impedance of 35Ω ; a length of insulated wire to form an r.f. coupling loop and a $0.1\mu F$ isolating capacitor.

To perform alignment it is necessary to remove the chassis from its case. During alignment, the level of input signal should be adjusted to maintain an output of 50mW.

- 1.—Set the output meter to its 100mW range and connect it across the speaker leads. Connect the signal generator across the aerial section of the tuning gang **C36** (white lead). Switch receiver to L.W. and turn the volume control to maximum. Rotate the tuning gang to the fully open position.
 - 2.—Feed in a 470kc/s 30 per cent modulated signal and adjust the cores of **L9** (location reference A2) **L8** (A1)

Drive cord assembly shown with the tuning gang at maximum capacitance. Calibration marks on the scale backing plate are required for circuit alignment

and **L1** (**C1**) for maximum output.

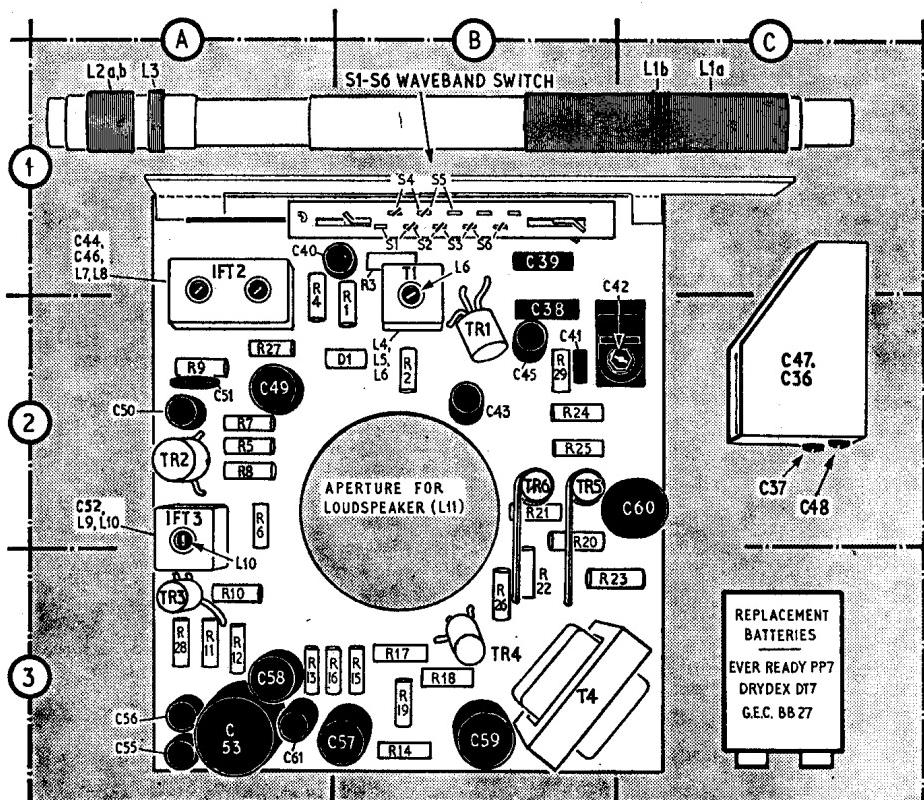
- 6.—Set the cursor to the 207m calibration mark, feed in a 1,450kc/s signal and adjust **C48** (**C2**) and **C37** (**C2**) for maximum output. Repeat until no further improvement can be obtained.
- 7.—Switch receiver to l.w. and set the cursor to the 1,333m calibration mark. Feed in a 225kc/s signal and adjust **C42** (**B2**) and **L2** (**A1**) for maximum output. Repeat for optimum results.

GENERAL NOTES

Dismantling.—Access to the batteries, ferrite rod aerial assembly and foil side of the printed circuit panel is obtained by turning the two latches and lifting off the back cover. Restricted access to the component side of the printed panel can be obtained by removing the two Phillips-head screws securing the corners of the panel to the chassis frame.

For complete removal of the chassis from its case (required for alignment), proceed as follows: Remove the batteries. Remove the front control knobs by slackening their grub screws. Take out two screws and washers (one each end of the control panel) securing the chassis to the case. Ease out from the bottom and withdraw the chassis assembly guiding the press-buttons out of the aperture in the front moulding. After withdrawal sufficient freedom for most servicing operations will be provided by unsoldering the external aerial leads.

Batteries.—Two Ever-Ready PP7 or equivalent.



Front view of the chassis giving component locations and alignment adjustments